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***The role of Science Parks in accelerating knowledge economy growth – contrasts between emerging and more developed economies. SIVA – superstructure and global instrument for innovation development.***

*Plenary Session 2:*
*Fast-tracking developing economies into the global economy – STPs as vehicles*

Author:
Harald Kjelstad (harald.kjelstad@siva.no)

Co-Authors:
Alma Karabeg, Per Støle

SIVA – The Industrial Development Corporation of Norway
P.b. 1253, Pirsenteret, N-7462 Trondheim, Norway

# The role of Science Parks in accelerating knowledge economy growth – contrasts between emerging and more developed economies

## SIVA - superstructure and global instrument for innovation development

***Executive summary***

In 100 years, Norway has climbed from being one of the poorest economies in Europe to one of the richest, and has a steady and high economic growth. During the last 40 years SIVA – The Industrial Development Corporation of Norway has created innovation systems and innovative concepts such as Science Parks across Norway. During the last 15 years SIVA has also implemented the same concepts abroad in emerging economies and post-conflict countries. These states with emerging markets proved to be fertile ground for flourishing innovation systems based on concepts designed by SIVA.

Through its long-term engagement in innovation systems, SIVA has acquired a unique ability to adjust its concepts to the different contexts in countries with emerging economies. The concepts designed and developed by SIVA are based on a simple philosophy in which success criteria are made universal, and concepts can be adjusted to the different conditions and challenges.

***Keywords***: science parks, emerging economies, internationalization, innovation system, public policy role, management success factors.

## *1.The story of SIVA - The innovation system in the knowledge-based economy is fuelled by public policy.*

### The Norwegian challenge

When Norway gained its independence a hundred years ago, it was one of the poorest countries in Europe, and needed substantial foreign investments to start its industrial development. Today it is among the richest and most stable nations in the world. Its population is highly educated, its society is equitable with strong social protection and high levels of transparency, and unemployment rates are the lowest in the world (IKED, 2004).

This success can partly be explained by natural resources, especially the development of hydropower, the foundation of large export industries within metals and chemicals, and – today – steadily growing exports of renewable green energy and power to the European market.

Later, some forty years ago, the exploration of oil and gas offshore in the North Sea started, and today the petroleum sector is a driving force in the economy. In addition, the marine sector, both fisheries and aquaculture, as well as the maritime sector, have been very competitive in the international market.

In Norway we are aware that the petroleum production is not sustainable in the long run, and during the last twenty years there has been a strong focus on foresight discussions.

From 1996 the state profit from this production was transferred to the Petroleum Fund. The Fund, which later changed its name to the Government Pension Fund – Global, has grown to well over NOK 2000 billion or EUR 250 billion. After the turn of the millennium, the rise in oil prices also provided a boost.

As a major shareowner and bondholder, Norway has received increasing international attention. Many countries have established funds similar to the Government Pension Fund - Global, with substantial assets under management.

The management of the Fund is based on two ethical commitments:

- First, there is the consideration relating to future generations. The Fund must ensure high capital returns at a moderate risk, by means of professional management with effective control of operational risk.
- Second, the Fund must respect the fundamental rights of those affected by the companies in which the Fund has invested. The instruments used here are the exclusion of companies from the Fund's investment universe and the active exercise of ownership rights. The Ministry of Finance excludes companies that produce certain types of weapons. They also exclude companies when they identify an unacceptable risk of contributing to corruption, environmental degradation, violations of human rights and fundamental ethical norms.

Norway is number 25 on the list of the largest economies in the world, but number 115 when it comes to population. The industrialized countries in Europe with high economic growth, including Norway, have a shortage of educated specialists within some technological fields and international marketing, but also within healthcare and life science. Therefore it is also important to find methods for cooperation with companies and R& D institutions abroad, also on other continents.

The opening of the labour market to the new EU countries has provided us with access to a reserve of labour. Growing numbers of workers are moving to Norway and establishing residence here, but many workers are here on short-term assignments.

The Norwegian business sector has become increasingly efficient, inducing companies to increase their workforces. Norway has a relatively low score on normal indicators for innovation, but the economic situation is significantly better than in neighbouring countries. The explanation of this success, combined with natural resources, might be:

- R&D activity in the industrial companies, which is not shown in the statistics
- The well-developed innovation system
- The Norwegian management model, equality of status.
- The capacity for innovation is also remarkable in the small and medium-sized companies
- Highly educated population
- Policy for regional development

But we constantly need to highlight the challenges in order to push for improvements:

- Formulate targets for a comprehensive future policy that is realistic and meaningful in collaboration with the main stakeholders in the private and public sector
- Address factors in the educational system that limit human capital accumulation in support of innovation
- Improve conditions for high-tech and fast-growing new firms, especially for the allocation of seed and venture capital
- Promote participation and lifelong learning in the workplace
- Strengthen local competencies and processes conducive to innovation through selective decentralization, also promoting internationally oriented innovation strategies
- Enhance private-public partnership combining research, innovation and technology diffusion, drawing on established strengths in selected industries where resources and networks account for critical mass.
- CSR thinking as part of the culture among entrepreneurs.

Adopting a policy agenda for fostering innovation requires a strong mandate from the highest level of policy-making (IKED, 2004). The task of creating innovation cannot be carried out at this level, so it is important to have institutions that will engage in innovative efforts. In Norway three public institutions are working in this field with different responsibilities: The Research Council, Innovation Norway and SIVA - The Industrial Development Corporation of Norway. SIVA is a state-owned corporation that creates and develops innovation systems.

It is important for Norway to build sustainable long-term growth, and one of the measures to achieve this is to establish institutions and implement policies that lead to innovation. Structural and macroeconomic changes in the country have created the new knowledge-based economy, which is marked by internationalization, a shift to the service sector, investment in ICT and expansion of the R&D environment (IKED, 2004).

SIVA's framework strategy and business development are determined by the Norwegian government and Norwegian parliament *Stortinget*. At present, the strategic foundation consists of three parts:

- Development of SIVA as an independent enterprise as described in Report to the Norwegian parliament no. 30 (2004-2005)[1]:

  *"Through ownership, SIVA should develop infrastructure where companies have access to network and competence."*

- National responsibility for an innovation network assigned by the Norwegian parliament: *"SIVA shall have two main fields of interest: real estate and innovation. These two areas are closely interrelated because investments in real estate provide physical infrastructures for innovation enterprises and also make financing possible. It is positive that SIVA as its important strategy has the development of infrastructure and innovation network in cooperation with private agents, founders, investors, research environment and education institutions."*

  The Norwegian government describes SIVA as a "national enterprise for innovation, value creation and new workplaces". The Norwegian Ministry of Trade and Industry writes in its paper:

  *"SIVA is a prioritized tool in the government's work on the broad development of Norwegian innovation ability and the creation of value across the whole country. SIVA and its network contribute to close cooperation between the business sector and the R&D environment, financial environment and public agents. SIVA's incubators in urban areas stimulate commercialization of research results and successful business establishments."*

- International work and its presence in Northwest Russia. The Norwegian government believes it is positive for SIVA to participate in building infrastructure in other countries, as this can also strengthen domestic economic activity. Oil and gas activities in the Barents region attract Norwegian involvement in the High North and Northwest Russia.

SIVA's government-appointed Board of Directors makes decisions on investment on commercial principles. SIVA has a formal requirement to generate a return on the company's own capital and does not differ much from private investors in this respect. SIVA is oriented towards results and accomplishes international benchmarking of innovation models to ensure effective policy. Since its establishment in 1968, SIVA has developed methods and concepts that have proved to be effective in the development of physical infrastructure and innovative networks in cooperation with the private sector, investors and R&D institutions, including remote areas in Norway. SIVA's network hubs of Industrial Parks, Research and Science Parks, Business Incubators, Business Gardens and seed/venture funds across Norway are key elements in regional economic development.

In the period from 1968 to 1988, SIVA was responsible for establishing Industrial Estates. The model of Industrial Estates was based on a similar concept used in the UK during the 1950s to improve the post-war economy after WWII.[2] The new era started in SIVA in 1988 when it was commissioned to develop the innovation system in Norway. SIVA was assigned the task of implementing, developing and managing innovative concepts across the whole country. The main aim was to develop economic activity in all regions of Norway in order to achieve a sustainable economy in all parts of the country. The Norwegian government has also given

[1] Report to Norwegian Parliament no. 30 (2004-2005)
[2] STEP Report R-08-2000

SIVA responsibility for promoting entrepreneurship and innovation, creating new workplaces, and encouraging equal employment opportunities for both men and women.

From 1968 to 2001, SIVA was owned by the Norwegian Ministry of Local Government and Regional Development, but in 2001 the Norwegian Ministry of Trade and Industry took over as the owner of SIVA.

Since 1988, SIVA has developed into a special institution in Norway. Originally a corporation for Industrial Estates, since the 1980s it has had the opportunity to undertake market-oriented work through other companies and enterprise development. Møreforskning[3] was commissioned by the Norwegian Ministry of Local Government and Regional Development to evaluate the effects and effectiveness of SIVA's means in 1995.[4]

Recent economic theory has focused on knowledge, R&D and innovation as important factors for creating economic growth. The capital market lacks the ability to create these important factors. Møreforskning's evaluation report concludes that this theory supports SIVA as an institution that has developed into a modern agent and has engaged new theoretical perspectives in its work. SIVA has built a future-oriented competitive infrastructure and a dynamic business development environment locally. This has been an investment in competence development and network building to promote future growth in employment.

Theoretical perspectives provide signals about how public efforts can be implemented in growing competitive business activity. Innovation is seen as the driving force behind economic development. Human knowledge and initiative are the driving force behind the innovation process, and it is important that such initiative comes from the local environment.[5]

Several measures have been implemented recently in the form of various infrastructures and facilities that aim to create conditions for entrepreneurship. These innovative concepts have been established all over the country and are part of a national network which aims to contribute to innovation. SIVA is an important agent in the development of this network, which includes investment companies. The aim of this infrastructure is to create development-oriented business environments and ensure entrepreneurship, innovation and growth. Development of these environments takes place in the following way:

- Co-localization of these companies creates synergy
- Close connections to knowledge and education institutions are developed
- In most of the environments/establishments, an incubator is organized in order to support the development of new companies and provide guidance in connection with marketing; it can also invest some resources in new companies
- There is an active network function in establishing areas (such as conferences and gatherings of incubator management) and also through extending the network into relevant business activity and relevant knowledge environments
- Interaction with financing agents such as business angels, investment funds or seed capital funds connected to the network.

After a short period, a structure of agents and programs had been developed and was functioning effectively in most of the parts of the country (Spilling 2006).

[3] http://www.moreforsk.no/en/index.htm
[4] Møreforskning Molde (1995) working paper M9508, "Evaluation of SIVA SF", Molde,
[5] STEP Report R-08-2000

## *2. Innovation system in Norway*

Over the years, the need for economic development in rural areas of Norway has led SIVA to develop a range of government-sponsored innovation concepts such as Business Gardens[6], Research Parks, Science Parks, R&D Incubators, Industry Incubators and Norwegian Centres of Expertise. These innovation concepts aim to enhance and accelerate innovation in local communities and regions where the capacity for growth is weak. Innovative concepts created by SIVA represent tools to encourage and facilitate local sustainable enterprises in the early stage of a company's ecosystem.

SIVA's aim with regard to innovative concepts is also to unleash regional entrepreneurial attitudes and create a more sustainable pattern of growth in all parts of the country, as well as to reduce barriers to private sector growth. Entrepreneurs and SMEs are seen as engines of local job and wealth creation. Most rural areas have their main income from the agricultural and/or natural-resource-based industry. The major challenge is to create more knowledge-based and global competitive businesses in these areas.

SIVA's evaluation concludes that innovation concepts have a significant role in enhancing and strengthening local economic development, adding value to business investments, and creating more sustainable jobs for both men and women.[7]

A summary from the Report to the Norwegian parliament," Stortingsmelding nr 46 (2003-2004)": *"SIVA has been a creative initiator, and has through its combination of means contributed to the development of important environments for innovation and commercialization in the private sector. SIVA has been an active co-owner and a driving force in the innovation environment and in the arenas for creativity, including the physical infrastructure, innovation and investment companies (seed and venture funds), as well as network functions for local, regional and international networks for public and private entrepreneurs. SIVA has been an important driving force in identifying needs and accomplishing tasks for sustainable regional innovation and local wealth creation in remote and less developed industrial areas. SIVA has a number of tools within the concepts of innovation systems that are adjusted to each local area's resources, capabilities and opportunities in close collaboration with local stakeholders"*[8].

SIVA harbours the biggest innovation system in Europe. More than 1,500 stakeholders, including private investors, industrial and financial corporations, companies, universities and other important R&D institutions participate in SIVA's activities. SIVA is co-owner in more than 100 innovation centres in Norway, and it functions as an exchange for sharing approaches to industry and innovation. SIVA is a partner in 52 Business Gardens, 24 Business Incubators, 16 Industry Incubators in core industries, and 25 Science and Research Parks, 10 seed-venture companies and 9 Norwegian Centres of Expertise across Norway.[9] Other stakeholders include StatoilHydro, which contributes with shares in NorInnova, the northernmost Research Park. Besides capital, StatoilHydro contributes knowledge and networks. The Norwegian Ministry of Local Government and Regional Development funds the support schemes for innovation concepts like Business Gardens, while the Norwegian Ministry of Trade and Industry supports other concepts. These centres represent important networking hubs for companies, investors and R&D environments. In addition SIVA owns and manages 40 Industrial Parks.

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[6] Business Gardens are small Business Innovation Centers
[7] Hartmark Consulting AS (2004) "Næringshagene - omplanting og gjødsling av den eksisterende underskogen", Oslo
[8] Report to the Norwegian Parliament "Stortingsmelding nr 46(2003-2004)"
[9] For more information, see the attached map Attachment no.1

SIVA's success can be explained by the way it works as a creative initiator with regard to local entrepreneurs, private businesses and communities, R&D and capital networks. SIVA gets local stakeholders to become involved and to take responsibility for the economic development of specific areas or sectors. SIVA contributes tailor-made concepts and tools like physical infrastructure and networks based on local needs and advantages. In addition to these, SIVA brings in good management standards as well as competent and commercial ownership. SIVA requires private-public partnership and has a multi-stakeholder approach. SIVA is a small and effective organization that focuses on local employment and ownership at each site, connecting all the projects together in SIVA's network where knowledge and best practice are shared. Through SIVA, companies and entrepreneurs are provided access to global capital and knowledge networks. Science Parks and other components of SIVA innovation network actively collaborate in Regional Innovation networks (incubation, R&D, investments) and also in close cooperation with the regional authorities (county councils).

SIVA has a requirement for its own and collaborating companies to follow the initial states' laws and rules in international projects, including the fight against corruption and to operating in a transparent and accountable way. SIVA acts in accordance with *Corporate Social Responsibility* and ensures that its projects do not have a negative impact on the environment. SIVA has special programmes to encourage female entrepreneurship and employment. SIVA ensures the trustworthiness to participatory companies regarding compliance with the country's laws and rules, as well as with progress schedules and economic budget. The innovation concepts have been a considerable factor in wealth creation and income tax revenue. The gathering of local and international companies has led to an increase in local economic sustainability. Norwegian, foreign and local companies have shared and contributed to each other's knowledge in many areas. These positive effects are expected to increase as the parties involved develop their cooperation within other fields in the years to come.

SIVA`s main instruments are physical and knowledge-based infrastructure and innovative networks that provide a good environment and culture as well as offering tenants reduced risks and capital needs. SIVA's concepts are based on an independent broker role in creating long-term local economic development through private-public partnerships. SIVA can take care of and establish the necessary network for management and implementation. SIVA is 100% project-financed, and can demonstrate cost effectiveness and good business standards. SIVA's competence and concepts fit in with projects in Norway and abroad where the focus is on local and regional development through industry development, innovation and entrepreneurship. SIVA's international activity has been considered to be unique in a Scandinavian context.[10]

## SIVA's definition of Science Parks

"Science Park" is a name that has become a common term for an innovation company with a physical and/or proprietary attachment to one of the universities or regional colleges.

The idea of a Science Park is to take advantage of knowledge production in the education and research environment in a better way. To add this knowledge to the business

[10] Centre for Economic Analysis, Report no 96/01 2001, "SIVA`s involvement abroad as a district policy evaluation of SIVAs international involvement"

competence of the regional economic activity provides a foundation for innovation and increased value creation.

The business concept of the Science Park is based on the international Science Park concept, but puts emphasis on interaction with regional economic activity.

SIVA's science parks are members of the Norwegian Association of Science Parks[11] and some of them are members of the Nordic branch of IASP.

The role of research and science parks includes bridging the gaps between universities, research and educational environments. Another aspect of their mission is to provide growth space for research-based ideas with commercial potential. The park is the development area, where various players have the possibility to meet each other, focused on building networks, cooperation and value creation.

## Evaluation of SIVA

SIVA was evaluated in 2000. The major conclusion was generally positive: *"SIVA is a creative initiator and creator of concepts for research and science parks, business camps and incubators. With its focus on knowledge-sharing networks, SIVA has placed itself in the centre of what recent research has acknowledged as important drivers for regional business development. "* [12] *(From the evaluation of SIVA by the research institute STEP.*

Considering the positive effects of SIVA's activity, the Norwegian Parliament confirmed the goal and role of SIVA in the second half of 2004:

> *"SIVA's role is within two fields of activity: physical infrastructure and innovative networks. Such networks are acknowledged as being of utmost importance for a country's ability to innovate.*
>
> *SIVA's main aim is to contribute to the achievement of the Norwegian government's policy goals in remote areas, and within this framework it contributes to unleashing innovation capability and increased wealth creation in all parts of the country. SIVA is aware of the benefits that participation in international projects brings, through networks, insight and new knowledge that can be used to further develop SIVA's concepts in Norway and internationally."*

## Evaluation of Business Gardens (Small Business Innovation Centres)

Abstract from Hartmark Consulting AS, evaluation report to The Norwegian Ministry of Local Government and Regional Development, 9 February 2004:

Business Gardens were established in 1998 as a support scheme under the Ministry of Local Government and Regional Development. Business Gardens aim to enhance entrepreneurship and new business development in remote areas without colleges or universities. In total, 52 Business Gardens have been developed in Norway and organized by SIVA. Business Gardens have established a formal regional network across the country.

[11] www.fin.no
[12] STEP-group, 2000. "Evaluation of SIVA. From owner to developer"

Due to the responsibility assigned by the Ministry of Local Government and Regional Development, an evaluation was undertaken during the first half of 2004.

As a main conclusion, the evaluator underlines that the Business Garden is a significant scheme in enhancing local business environment:

- Business Gardens have contributed to strengthening and developing local business enterprises and local business investments as a part of a broader and long-term local economic development.
- Job creation in companies within a Business Garden is more sustainable compared to other companies in the local economy, and therefore contributes to greater continuity in the local business community.
- Over time, enterprises in Business Gardens can contribute to an increased range of competence-based jobs in the region.
- Business Gardens seems more attractive to women entrepreneurs and employees.

The evaluator recommends that Business Gardens should concentrate future investments on the assignments and fields where Business Gardens have shown the ability to succeed. Recommendation for further investments:

- Strengthening internal network building in the business camp
- Strengthening the building of networks with the local business environment outside the Business Gardens
- Strengthening the environment for the female entrepreneur.
- Strengthening SIVA's networking role to increase synergies between Business Gardens and companies through the country

## Evaluation of Incubators

Agder Research Foundation report no. 6/03, "9 Norwegian incubators":

- R&D Incubators achieved the expected results. In the period from 2001 to 2003 when the evaluation took place, SIVA had established 9 R&D Incubators. They have proved to be a good social investment project.
- Incubators can take credit for establishing 163 new companies in their first years.
- By the year 2007, 24 such Incubators had been established and they had succeeded in establishing 1000 new companies.

STEP-gruppen, 2000, "Evaluation of SIVA, From owner to developer":

- The major conclusion was that SIVA is a creative initiator and creator of concepts for research and science parks, business camps and incubators.
- SIVA has in certain cases been engaged by Norad[13] in relation to development programmes. The Ministry believes that it is positive for SIVA to contribute with its competence in this field.

[13] The Norwegian Agency for Development Cooperation (Norad) is a directorate under the Norwegian Ministry of Foreign Affairs (MFA). http://www.norad.no

## *3."Exporting" innovative concepts to emerging markets & post-conflict areas*

### SIVA International activities

SIVA has in recent years become engaged in establishing a number of locally based innovation concepts in countries with a transition economy and in less developed countries where there is a need to grow sustainable businesses. SIVA's international activities have mostly been demand driven, and often on a bilateral basis. Today SIVA is engaged in projects in the Baltic States, Russia, Romania, Bosnia-Herzegovina, Croatia, Kosovo, Kenya and South Africa. SIVA was preferred by the South African region Mbombela (Mpumalanga province) in 2003 after a benchmarking of innovation concepts around Europe. A pre-project report was considered by Mbombela municipality. Mbombela municipality is the project owner, and has an all-embracing right to determinate further application of presented ideas and to provide any comments or amendments. Three institutions are involved in the project – Mbombela municipality, the Norwegian Association of Local and Regional Authorities (Kommunenes Sentralforbund – KS)[14] and SIVA.

The Norwegian Ministry of Foreign Affairs, Norfund, The Norwegian Agency for Development Cooperation (Norad), EBRD and regional UNDP are among the main finance partners in SIVA's international activities. SIVA cooperates and participates in local NGOs and in the public forums for trade and sustainable development.

Evaluation of SIVA's international activities:

In 2005 SIVA in cooperation with SINTEF[15] established the BIT centre[16] in Tuzla, Bosnia and Herzegovina, which up until now has created 100 new workplaces and 18 start-up companies.[17] The latest evaluation of SIVA's establishment carried out by Oxford Research was SIVA's BIT centre in Tuzla, Bosnia and Herzegovina in the IT sector.

Oxford Research noted in their report that the BIT centre in Tuzla:

- Contributes to the creation of an ambiance and competence networks for the start-up of businesses and develops and applies information communication technologies (ICT) in the Tuzla Region
- Contributes to job opportunities and wealth creation in Tuzla and the Tuzla region
- Establishes a sustainable and market-oriented centre for new technologies and a Business Incubator focusing on ICT entrepreneurs by the provision of assistance to business start-ups and facilitation of international matchmaking and access to foreign markets.

A wide range of other goals for the project have been achieved. The assessment of these is as follows:

[14] KS - The Norwegian Association of Local and Regional Authorities (Kommunenes Sentralforbund) was promoting the project and is the official Norwegian cooperation partner. Oslo is the sister municipality to Mbombela, which led to the initiation of the project.

[15] The SINTEF Group is the largest independent research organization in Scandinavia. www.sintef.no
[16] www.bit.ba
[17] Oxford Research (2008) "So far so good" Evaluation of the Business Innovation Project in Tuzla, BiH, Kristiansand, Norway

- Incubator/business innovation centre with full occupancy
- Established reputation in the local market and business environment as a competent arena for business development
- Established attractiveness among students and entrepreneurs
- One of the main reasons for companies to apply for a place in the BIT Centre is the potential link with foreign partners
- Established viable funding and income sources
- Created business networks
- SIVA's competence has to a certain extent been transferred through the implementation of different standard operating procedures (SOPs)

A reasonably well-functioning incubator has been established, which is more or less financially sustainable. The building is functional and attractive; the management and administrative setup functions. The BIT Centre is well renowned and has a good image. Oxford Research concludes that the BIT Centre is now a well-functioning incubator ready to take the next step and move forward by developing a more dynamic innovation centre.[18]

SIVA's activities in Russia, Latvia and Lithuania were evaluated in 2001. [19] The overall conclusion of the evaluation report to the Ministry of Trade and Industry was positive with regard to SIVA's international activities. The main findings from the evaluation were:

- The impacts on companies that are tenants in SIVA's innovation concepts are positive, and innovation concepts contribute to reducing costs and strengthening the ability to compete and increase profitability.
- The consequences for the local community where innovation parks are established are also positive, since they create new jobs and tax income.
- SIVA handles its international investments according to criteria for operational efficiency. Investments are commercial and have an acceptable risk.
- SIVA invests in infrastructure and building of trade on commercial grounds. In this way companies can be established in a safe infrastructure, and the companies' own need for capital related to internationalization is reduced. SIVA provides Norwegian companies with access to new networks and competence through the connection with foreign universities and research networks.
- Private banks have a positive attitude towards SIVA's projects.
- SIVA's main focus is on the interests of the tenants.
- The important element in SIVA's projects abroad is transfer of competence.
- SIVA shows good coordination ability between many players and participants.
- SIVA has an international network of senior staff with long experience in trade and industry development nationally and internationally.

- SIVA is aware of the knowledge and benefits of international projects, and together this will be used in order to further development and improvement of SIVA's concepts and working methods.

ECON[20] note no. 87/01, Project no. 35950, December 20th 2001, "SIVA's involvement abroad"

Positive effects of SIVAs international concepts:

[18] Oxford Research (2008) "So far so good" Evaluation of the Business Innovation Project in Tuzla, BiH, Kristiansand
[19] ECON, 2001, note no 87/01"SIVA`s involvement abroad – an abstract". Report no 96/01 2001, "SIVA`s involvement abroad as a district policy evaluation of SIVAs international involvement"
[20] Centre for economic analysis ECON

- increased profit,
- workplaces become more attractive,
- effects are greatest when the motive for international establishment is access to knowledge
- companies gain increased trade and profit
- domestic companies gain access to new clients and markets

The most important reasons to rent premises in industrial parks are:

- security,
- access to up-to-date premises,
- good environment and culture
- The business centres provide tenants with reduced risks and capital needs, along with the soft infrastructure. SIVA's international engagement has an important role in creating the centres for companies that are interested in co-premises.
- The business centres abroad focus on possibilities for further development. SIVA operates such business camps today and is probably the best candidate to do so in the future.
- Political goal: Norwegian involvement in developing countries can have positive consequences for the rest of economy and thus be positive for countries that Norway decides to support.

Ministry of Trade and Industry, December 16th 2002, "Analysis and consideration of SIVA's involvement abroad":

- The impacts on companies which are tenants in SIVA's business camps are positive because business camps contribute to reducing costs, strengthening the ability to compete and increase profitability.
- The consequences for the local community where business camps are established are also positive, since the business camps create new jobs and tax income.
- SIVA handles its international investment in a responsible way according to criteria for operational efficiency. SIVA's projects abroad are based on common business principles. Its involvement in projects is never based on speculation.
- SIVA has good control over its business and financial risks. The emphasis is on the long-term perspective and risk reduction. Sharing of risks with private investors and external lenders has high priority at SIVA.
- SIVA is not engaged in countries that are not compatible with Norwegian foreign policy.
- International establishments can provide a better access to markets and competence. The Ministry of Trade and Industry assesses in which geographical region and countries the expansion will take place.
- SIVA invests in infrastructure and building of trade on commercial grounds. In this way the companies can be established in a safe infrastructure, and the companies' own need for capital related to internationalisation is reduced. SIVA provides Norwegian companies with access to new networks and competence through the connection with foreign universities and research environments.
- The main focus is on small and medium-size companies. SIVA's main focus is on the interests of the tenants.
- The establishment is related to the trend towards increased integration and globalization of the world economy. The important element in SIVA's projects abroad

is transfer of competence. SIVA's international activity includes mobilization of foreign capital and industrial competence to Norway.
- SIVA's business camps in the Baltic have benefited companies that have taken advantage of SIVA's offering, because they have increased their profit.

## The situation and challenges in emerging economies

Emerging economies are often connected to conflict or post-conflict areas where the political situation is unstable, with a lack of development policy coupled with unpredictable conditions. Confidence in political authorities is low because of corruption and lack of transparency. Unemployment threatens stability and triggers emigration causing brain drain, a major obstacle in building a middle class. In addition, young people move from rural to urban areas, causing overpopulated cities and stagnation in regional development. The private sector relies on a few activities with low productivity and job destruction resulting from the market economy. Unemployment is high among women and there are few female entrepreneurs. There is often little connection between the academic sector and the business community. In many countries, weakness in the authorities, academic sector or business community makes it difficult to establish a triple helix system. Lack of physical facilities, technical infrastructure and credit makes it difficult to set up an environment for innovation.

What is the role of Science Parks in emerging markets?

Science Parks in emerging markets turn pessimism to optimism by setting good examples and improving conditions for start-ups and SMEs. They promote employment, investment and education opportunities. Business infrastructure is built with access to business advisory services and training in entrepreneurship and business skills. The existence of Science Parks in less developed economies increases the chance of attracting foreign capital and international companies. It also reduces brain drain and improves the quality of labour. Science Parks offer programmes for female entrepreneurs, preserve Corporate Social Responsibility and offer equal opportunities for both men and women.

Benefits of Science Parks in emerging economies

- They facilitate local enterprises and entrepreneurs with an innovative and supportive environment
- They focus on local development, abilities and resources
- They bring international networks and knowledge to the region
- They create attractive conditions for foreign capital and multinational companies
- They shelter small companies from corruption and abuse
- They provide a legal and transparent framework
- They provide a good role model and optimism in a broader local context

Historical review of SIVA - innovation concepts in developing economies:

- **Murmansk – North West Russia**: Business Park, SIVA's first physical establishment abroad, was opened on April 13th 1999. There are 20 tenants in the park with 150 employees. In total 50 companies have been established through this centre. It

functions as a connection for Norwegian companies and their development and cooperation, as well as a Norwegian *trade partium* in Northwest Russia.

- SIVA started up activity with other types of concepts for Norwegian industry in the Baltic States Estonia, Latvia and Lithuania.

**2000:**

- **Lithuania:** SIVA completed two Norwegian Business Parks, one for the textile industry and one for the furniture industry in Panevezys, Lithuania for Norwegian industry. The opening took place on May 11th 2001. In the beginning, it contained 11 Norwegian companies. It provided an offering to small and medium-size Norwegian companies from rural Norway that were stakeholders in internationalization and export.

**2001:**

- Started development of a business park in Ogre in Latvia. An industry field of 9500 m2 for Norwegian metal industry.
- SIVA joint NHO[21] and Russian partners in a pilot project that investigated the business infrastructure in Murmansk harbour. Four fields of interest were highlighted: Fiscal, transport, tourism, oil and gas.
- Started a project for the establishment of a Business Innovation Centre in the Baltic region, an arena for cooperation with the Baltic Innovation environment. The pilot project was financed by NOPEF.

**2002:**

- The Ministry of Trade and Industry evaluated SIVA's work with a positive conclusion. It was stated that SIVA's international competence and network should be expanded and actively used in creating Norwegian values in the new global labour division.
- SIVA signed a cooperation agreement with Northtown Technology Park in Vilnius.

**2003:**

- The business camp in **Ogre in Latvia** was officially opened in June 2003.
- In cooperation with SINTEF, Norad draws on SIVA's competence for the development of concepts for business camps and research parks in Bosnia-Herzegovina.

**2004**:

- Beginning of the 5-year innovation project in Bosnia-Herzegovina in cooperation with SINTEF. The Norwegian government is financing the project.

- SIVA International completed a project in South Africa. The project aimed to provide recommendations to local and regional governments in the choice of innovation system for new establishment in the area. The Norwegian Ministry of Foreign Affairs financed this project.

- Focus on Northwest Russia and SIVA's centre in Murmansk in order to change the concept and content to suit the future opportunities related to the oil industry in Northwest Russia.

**2005:**

- Innovation centers in Murmansk and Arkhangelsk, Northwestern Russia are under establishment. The common web page for those projects is www.barentsnova.com.
- SIVA was assigned the main role in establishing the business environment oriented towards the oil and gas industry in the northern area. The transformation of industrial park in Murmansk into an innovation center for oil and gas industry is in progress.
- SIVA signed an agreement with Norsk Hydro on the development of a competence and innovation centre.
- In 2005 SIVA accomplished several projects in cooperation with, and financed by the Norwegian Ministry of Foreign Affairs. In Tuzla in Bosnia and Herzegovina, the Innovation centre BIT Centre was officially opened in October 2005. The centre was established in cooperation with local authorities and the university in Tuzla.
- A survey of Norwegian activities within the maritime sector in Romania has been accomplished as well.

**2006**

- Preparation for an incubator in Polar Star Innovation Centre.
- Preliminary study in Romania.

**2007**

- Pilot project for Maritime Innovation Centre in Sibenik, Croatia

- Pilot project for Innovation Centre in Banja Luka, Bosnia and Herzegovina started in January 2007
- Pilot project for Innovation Centre in Kosovo started in September 2007

**2008**

- Innovation Centre in Banja Luka is under establishment in cooperation with, and financed by the Norwegian Ministry of Foreign Affairs.

## *Conclusion*

The innovation concept is basic both in emerging and in more developed economies, but the challenges are different in emerging economies. It is important that Science Parks in emerging markets create new profitable and long-term workplaces and stimulate sustainable development. Science parks in such countries have to attract international investors and contribute to holistic development. SIVA believes in “learning by doing” as a method. It is important to create a set of rules and predictability in the innovative environments. By establishing innovative concepts in other countries with emerging economies, SIVA hopes to transfer not only its professional expertise in managing these concepts, but also some of its CSR experience in creating strong institutions in order to maximize the benefit of natural resources on the road to a knowledge-based economy.

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## Attachment no 1

Map of Norway with SIVA's establishment marked


Næringshage – Business Garden (Small Innovation Centres)

Eiendom /Industri park- Industrial Estates

Inkubator- Incubator

Forsknings- og kunnskapspark – Research and Science Parks

Såkorn- og venturefond – Seed and venture funds

**Attachment 2**

List of SIVA's Science parks in Norway:

1. Bioparken www.bioparken.no
2. Campus Kjeller www.campuskjeller.no
3. Forskningsparken www.forskningsparken.no
4. Forskningsparken i Narvik www.fpn.no
5. Forskningsparken i Tromsø www.fparktos.no
6. Rogaland Kunnskapspark (IPARK) www.kunnskapsparken.no
7. Leiv Eriksson Nyskapning www.len.no
8. NorInnova www.norinnova.no
9. Sarsia Innovation www.sarsia.com
10. Gjøvik Kunnskapspark www.gkp.no
11. Kongsvinger Kunnskapspark www.kpark.no
12. Kristiansand Kunnskapspark www.kkp.no
13. Kunnskapsparken Bodø www.kpb.no
14. Kunnskapsparken Hedmark www.kunnskapsparken-hedmark.no
15. Kunnskapsparken i Rana www.kunnskapsparken.com
16. Kunnskapsparken Steinkjer www.kunnskapspark1.no
17. Kunnskapsparken i Halden
18. Lillehammer Kunnskapspark www.lkp.no
19. Molde Kunnskapspark www.mkp.no
20. Origo Nord www.kunnskapsparken-nord.no
21. Sørlandets Teknologisenter www.sts.no
22. Ålesund Kunnskapspark www.aakp.no
23. Kunnskapsparken Sogn og Fjordane
24. Kunnskapsparken i Harstad www.kph.no
25. IT Fornebu www.itfornebu.no